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Ambiguous Space: the Research of Transparency and Shallow Space in Architecture

Yue Zhao

AMBIGUOUS SPACE

THE RESEARCH OF TRANSPARENCY AND SHALLOW SPACE IN ARCHITECTURE

by

YUE ZHAO

Under the Direction of Tim Nichols

ABSTRACT

Concepts in transparency have evolved, given the improvements in constructive technologies, new theories in architecture, and social behavior. In this thesis, I will try to articulate the transition in the concepts of transparency, initiating with literal and phenomenal transparency that Colin Rowe and Slutzky discussed in their essay, *Transparency, Literal and Phenomenal* and propose *ambiguous space,* a new understanding of transparency through current case studies in architecture.

INDEX WORDS: Transparency, Ambiguity, Order of space, Architecture.

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DEDICATION

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INTRODUCTION

Background

In the spring of 1955, Colin Rowe and Robert Slutzky started to write an essay about the concept of transparency in architecture. In the fall of the same year, they published the first section of this thesis; in winter, the second section had been completed, which can be seen as the development of the first one. In the spring of 1956, Rowe and Slutzky completed the last section of this thesis. Due to many reasons, this essay was not published in the same year. For example, *Architectural Review* agreed to publish this thesis only if the authors could delete their critique of Gropius. However, Rowe and Slutzky refused the request. This thesis finally was published in *Perspecta,* Vol. 8, the journal of architecture at Yale University in 1963. The title of this thesis was, *Transparency: Literal and Phenomenal*.

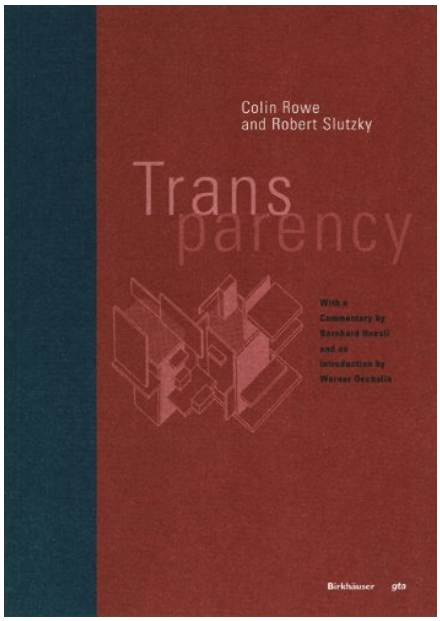

Figure 1.1 Colin Rowe and Robert Slutzky, *Transparency, Literal and Phenomenal*

Purpose of Thesis

Concepts in transparency have evolved, given the improvements in constructive technologies, new theories in architecture, and social behavior. In this thesis, I will try to articulate the transition in the concepts of transparency, beginning with literal and phenomenal transparency and propose a new understanding of transparency through current case studies in architecture. From these case studies, this thesis represents multiple possibilities of transparency in current architectural projects. Further, I will introduce and discuss my installation, *ambiguity,* as the conclusion of my understanding of transparency in architecture.

Transparency is cubist paintings

The history and theory of transparency take us back to the essay Rowe and Slutzky wrote in 1956. This essay represents two different concepts of transparency in architecture, literal and phenomenal. For explaining the different characteristics of the two concepts, the authors chose three architectural projects designed by Gropius and Le Corbusier. In the beginning of this essay, Rowe and Slutzky introduce both the physical and perceivable characteristics of transparency. According to the definition in dictionary, transparency is a material condition that of being reflected to light and air. Either transparency can be the basic physical characteristic of material, as in curtain wall, or it can be an organization of space.[1] On the other hand, transparency represents a perception that two spaces "are able to interpenetrate without an optical destruction of each other."[2] The authors believed that transparency in architecture, however, implied more than an optical characteristic, it implied a spatial order that connected spaces together. For explaining these two concepts, Rowe and Slutzky researched the origins of two concepts.

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[1] Colin Rowe and Robert Slutzky, *Transparency, literal and phenomenal,* (Cambridge, MIT Press, 1963), 46.
[2] Rowe and Slutzky, *Transparency,* 45.

According to their thesis, literal transparency could be tracked back to cubist paintings and aesthetics of mechanism. However, "Our senses to phenomenal transparency probably are from the observations to cubist paintings alone." [3]

Transparency describes not only an optical existence, but also a broader order of space.[4] Because literal transparency is a definition that can be directly perceived through the senses, the authors paid more attention to phenomenal transparency. Meanwhile, it also was the least understood or explored idea. Robert Slutzky, as a painter and a member in charge of the painting and color classes at the University of Texas in Austin, was familiar with art movements in the contemporary world. He explained phenomenal transparency in cubist paintings. According to Slutzky, The Mont Sainte-Victoire painting by Paul Cezanne is an example that highly illustrates the characteristics of analytical cubism, frontality (parallel perspective), compression of depth, oblique and rectilinear grids, and propensities of perspective from main figure toward environment and minor elements. Furthermore, oblique and curved lines created a deep depth of

Figure 1.2 Paul Cezanne, *Mont Sainte-Civtoire*

[3] Rowe and Slutzky, *Transparency*, 46.
[4] Rowe and Slutzky, *Transparency*, 45.

field at the direction of diagonal, which combines with the parallel perspective framed by horizontal and vertical lines. These two opposite perspectives simultaneously express the implied order between objects, as well as produce ambiguous relations.[5]

It is impossible to distinguish all the related elements in the painting. However, a large number of fragments on the canvas imply for observers to be conscious of the order of space. They may see some transparent areas connecting foreground and middle ground, as well as some translucent or even opaque areas in middle ground and background that restrain the transmission of light. Observers are required to move through the conflict between shallow and deep spaces back and forth. After sustaining observations, observers may achieve the situation that discovers that the planes show "interpenetration without optical destruction".[6]

From Cezanne's painting the authors further use three groups of cubist paintings to explain the differences between two concepts of transparency, Picasso versus Braque, Robert Delaunay versus Juan Gris, Moholy-Nagy versus Fernand Leger. Each group contains one painting that typically represents characteristics of phenomenal transparency. The other one contains fewer features. The authors believe that literal transparency is a method that allows observers to communicate with the main figure in paintings directly. While, phenomenal transparency emphasizes the implication of space in paintings. Through clues, for example grids on canvas, observers use their own imagination to detect the figure concealed behind complicated fragments. The authors have a standard to evaluate phenomenal transparency in cubist paintings. This standard includes two aspects. First, what method does the painter choose to represent the figures? In the paintings with fewer characteristics of phenomenal transparency, the figure is represented in a relatively direct way. Alternatively, phenomenal transparency

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[5] Rowe and Slutzky, Transparency, 45
[6] Rowe and Slutzky, *Transparency*, 45

implies the main figure with clues, with which observers use their judgment to discover the truth behind the surface. Another aspect is the number of possible ways of reading the painting. If the painting can be read by one method alone, it can be considered as having less phenomenal transparency. If the painting can be read with multiple methods, we can say that the painting has characteristics of phenomenal transparency. It also emphasizes the order and organization of the frame, by which the grids and objects are dissociated with each other and read separately.[7] Normally, we start from chaos on canvas, but end at a clear division between figure and background. When we try to read the painting at the beginning, the grids help us to determine the depth of field. Gradually, we start to read the content with the guidance of the grids. In the end, the figure appears.

One of the three groups is the comparison between Picasso and Braque. The authors simulated the order of observations between *The Clarinet Player* by Picasso and *The Portuguese* by Braque. In The Clarinet Player, Picasso defines the major figure with a strong contour. Because of the distinct contour, observers may have the sense of a transparent figure standing in front of a background. Through long observation, the views of people, gradually, are blurred by the interspace between foreground and background. Furthermore, they may realize that there is no depth of field in this painting. At the end, the entire image merges into an ambiguous chaos. In summary, the order of reading *The Clarinet Player* is from clarity to chaos. However, Braque uses more complicated and implicit skills with which the reading of his painting goes the opposite way. Observers simply fall into the ambivalence of canvas. The highly developed grids on vertical, horizontal, and oblique directions create an ambiguous depth of field.

[7] Rowe and Slutzky, *Transparency*, 45

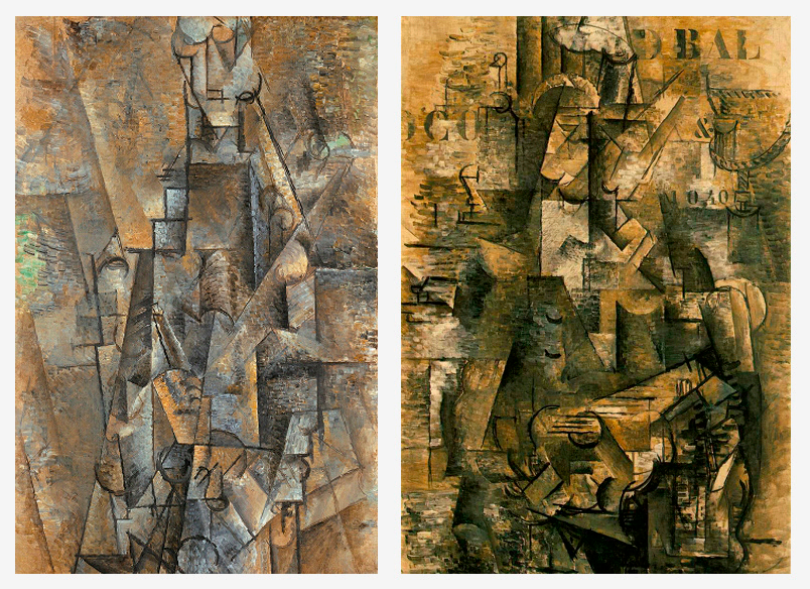

Figure 1.3 Comparison between *The Clarinet Player* by Picasso and *Portuguese* by Braque

Possibly, there was no depth of field at all. The figure appears only if observers observe the image for a long time. Comparing these two paintings, Rowe and Slutzky also state that *The Clarinet Player* provides one reading method alone, but *The Portuguese* not only contains more possibilities for observers, but also, "Braque provided an opportunity to read space and grid independently".[8]

The other two pairs of artists cited by Rowe and Slutzky are concerned with the characteristics of phenomenal transparency as well, which are used to help readers to create a general concept of phenomenal transparency. From these two examples finished in the periods after Picasso and Braque, we are able to see that the features of phenomenal transparency run through the whole history of cubism. Hereto, Rowe and Slutzky have stated their opinions on the concepts of transparency, not only in paintings, but they switch to discuss their theory of transparency in architecture.

[8] Rowe and Slutzky, *Transparency*, 47

Transparency in architecture

Architecture is different from painting, which is a form of art that exists on a two-dimensional canvas. The third dimension in painting is implied, but spatial existence is one of the essential characteristics of architecture.[9] Therefore, architects and critics generally associate transparency in architecture with the physical appearance of materials.[10] The visual communication between two layers in space has to be represented through glass or some other transparent materials. However, Rowe and Slutzky are trying to prove the existence of phenomenal transparency in architecture. By using two Le Corbusier's projects, Villa at Garches, and the League of Nations, these two authors explain the existence of phenomenal transparency in architecture, as well as the features of literal transparency in the Bauhaus. The first typical example for explaining phenomenal transparency is the Villa at Garches. Another example, the comparison between the League of Nation and the Bauhaus campus shows the development of phenomenal transparency in building complex and urban design.

First of all, the authors use the workshop wing of the Bauhaus to explain literal transparency in architecture. They believe that the glass wall in this building significantly reflects the physical characteristic of material. Unfortunately, this transparent glass wall denies all the transitions in the space. Due to the lack of information on the surface, a simplified transparency of overlapping planes is easily found. Although all kinds of constructional components, grids, and furniture confuse our eyes, we are able to catch all the information precisely either on the surface or in the interior space when we stand in front of the glass wall. We gain a similar experience from observing traditional paintings or frescos. It is difficult to read a traditional

[9] Rowe and Slutzky, *Transparency*, 48.
[10] Rowe and Slutzky, *Transparency*, 49.

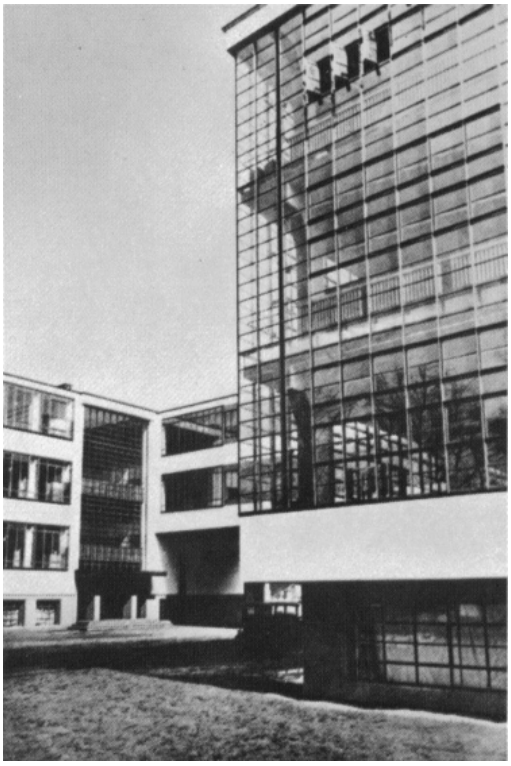

Figure 1.4 Bauhaus, corner of workshop wing

painting in a fresh way because we are familiar with almost everything in it. For the same reason the development of phenomenal transparency in this building is restricted. The entire building seems to be far away with the limitless possibilities of alternative readings.[11] As a result, Rowe and Slutzky have to look elsewhere.

Alternatively, one of the most important functions of the horizontal windows in Villa at Garches is to represent the planar extension of surface. As we see both the exterior and edge of the overhanging terrace emphasize the horizontal extension of the surface. The windows, moreover, seems to increase the perception that the façade is going to extend to an unlimited distance. At the edge of the sidewall, the facile frames of these windows substantially reduce the restrictions that are produced by cumbersome walls.

[11] Rowe and Slutzky, *Transparency*, 49.

Figure 1.5 Villa in Garches, garden facade

Rowe and Slutzky also state the implications of these horizontal windows on the facade of Villa at Garches. This implication guides observers to imagine the space behind the surface, and gives them a surprise in the end. For example, through the extension of the glazing horizontally, it implies that there is a parallel space behind the façade and it extends from one side to the other. Observers move to the second floor with the implication in mind. They suddenly realize that the interior totally contradicts. The whole floor is divided into several spaces in deep direction. Moreover, the architect intentionally set a curved wall to eliminate any incorrect anticipation that users bring from the exterior. Therefore, the building forces users to regulate their anticipations to accommodate the contradiction, back and forth; and by the continuous corrections, the space becomes full of possibilities of alternative readings. Alternatively, the Bauhaus seems to deny all imagination and to represent a distinct reading method for people. Even at the edge of glass wall, we are unable to find any possibility of spatial extension. Obviously, the transparency of a glass wall has negated all speculation of the space.

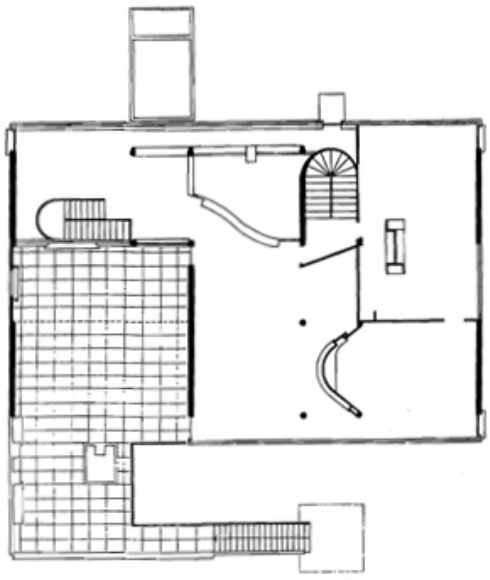

Figure 1.6 Villa at Garches, second floor plan

In their essay, Rowe and Slutzky explain the different selections of perspectives between literal and phenomenal transparency. From the photos of the Bauhaus and Villa at Garches, we can find that the perspectives have been separated into two distinct groups. In the Bauhaus, photographers tend to choose perspectives of off-axis views, which emphasize the stability of rhythm and unity of space. In terms of the interior space, the glass wall provides precise information for observers. Through the transparent material, observers are able to directly realize how deep the interior space is. On the other hand, the Villa at Garches has a totally different condition. Photographers like to shoot this building with a parallel perspective. As we mentioned, Bauhaus is a typical example of literal transparency that provides a distinct reading method of the building. Photographers precisely perceive this characteristic and record it by their photos. Villa at Garches, otherwise, brings different perceptions to photographers, who adopt parallel perspective by coincidence. Parallel perspective represents a compressed space, in front of which people need to presume the density of space with their knowledge. Although phenomenal

transparency is represented by the connection of a lot of compressed layers, the order of space is definite. Despite the repeated horizontal walls, the façade on the garden side contains a large number of clues for implying the order of space. For example, the ends of the sidewalls on the roof and the exterior wall on the first floor stop at the same spatial layer, which keeps the same distance to the main exterior wall on the second and third floors. This distinct order of space is hidden in the ambiguous details, which increase the possibilities of alternative readings of this building. In terms of the interior space, Villa at Garches adopts more abstract suggestions than direct descriptions. Rowe and Slutzky repeatedly emphasize the importance of the horizontal windows on the façade, not only because these windows extend the façade in a horizontal direction, but also they have the ability to implicate the form of the interior. The continuous windows seem to imply that there is a continuous parallel space behind the wall. However, the implication guides observers to the wrong assumption. When they step on the second floor, the order of the interior space will surprise them. They will find that the entire space is divided into a couple of parallel spaces on the deep side. Finally, observers have to correct their understanding of this building, and try to read it from an alternative angle.

Literal and phenomenal transparency also exists in an architectural complex and in urban design. The authors used the League of Nations and the Bauhaus campus to explain the possibilities. These two concepts mainly reflect on the order of spatial systems. Both of these two projects contain multiple directions of extension on shapes. The difference is that there is not a preference for a specific direction in the Bauhaus, but the League of Nations has an explicit order of spatial layers both horizontally and deeply. Every view in the Bauhaus campus represents the same sensation of penetration, but it is difficult to be aware of the difference between the main axis and auxiliary lines. In other words, it is not important how the observers

read the building. They will eventually admit that the order of space is simplified and clarified. However, the League of Nations represents a different possibility.

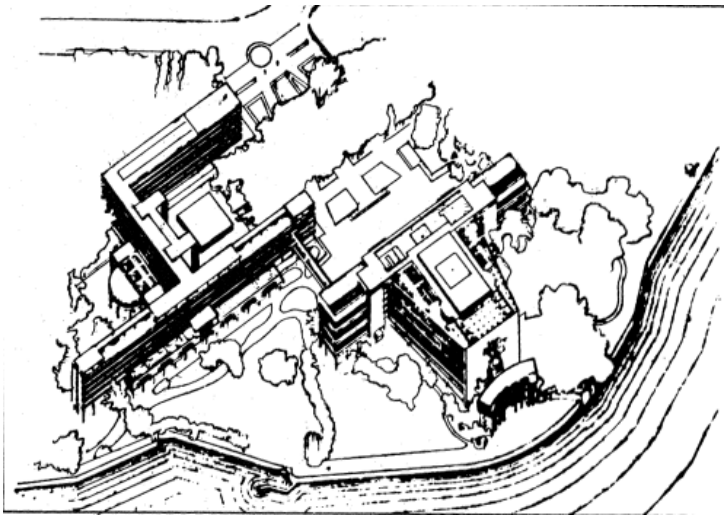

Figure 1.7 League of Nations, axonometric view

This project emphasizes the diversification of layers. For example, Le Corbusier set a wall with repeated glazing beside the presidential box, the major space of this building. The views of observers lead to the Secretariat and library building by the side. A newly appeared lack of focus moves one's vision away from the major building.[12] Moreover, we easily can find that the major axis is interrupted constantly by a series of parallel objects, such as stairs, trees, and transverse roads. These elements neutralize the traditional impression of a public building, which contains a spatial protagonist in the visual center, the presidential box in this case, and a deep space. Meanwhile, these interruptions compress the depth of space, and produce a neat order of observation. When people follow the path that Le Corbusier designed to walk through the forest, the expectation of a grandiose main building has been counteracted by the parallel layers of the horizontal direction. Rowe and Slutzky use a vivid metaphor to explain the difference between

[12] Rowe and Slutzky, *Transparency*, 53.

the Bauhaus campus and the League of Nations. Le Corbusier's space is a piece of crystal, while the surface glazing in the Bauhaus gives the building a "crystalline translucence". [13]

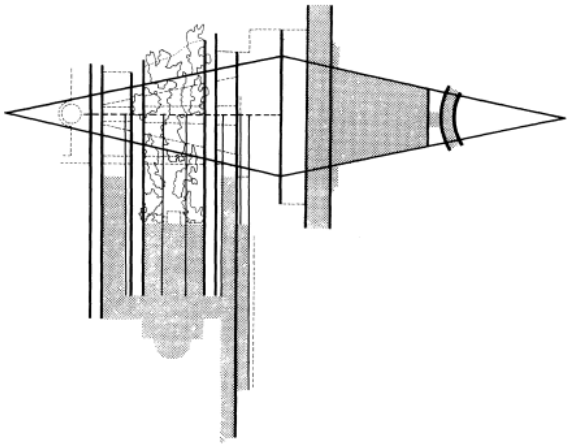

Figure 1.8 League of Nations, plan

At the end of the essay, Rowe and Slutzky state that neither literal nor phenomenal transparency is an inevitable component of architecture. It is also not necessarily a dogma for analysis of any project. The purpose of their statement is to provide qualifications of space in which phenomenal transparency is able to be possible.

ARGUMENT TO TRANSPARENCY, LITERAL AND PHENOMENAL

In summary, it has been more than 50 years since *Transparency, Literal and Phenomenal* was published, and although architecture has been described by new theories, the substance of transparency as defined by Rowe and Slutzky still maintains its importance. However, many questions have been raised. Is the theory of transparency that Rowe and Slutzky stated absolutely accurate? Are there any possibilities that these two authors did not mention in the essay? In this chapter, I will state my arguments to some viewpoints existing in their theory of transparency.

[13] Rowe and Slutzky, *Transparency*, 54.

First of all, we have to acknowledge that the theory of either literal or phenomenal transparency is inclined to a method of architectural critique, instead of a methodology in design. Although the authors chose two of Le Corbusier's projects as the examples for explaining phenomenal transparency, we doubt that Le Corbusier, himself, designed these two projects with the exact same theory. It is also possible that literal transparency is the initial idea that Gropius pursued. When we try to read architecture with the theory of either literal or phenomenal transparency, there is a statement we need to understand. All of our conclusions derive from our subjective determination, rather than objective existence. Furthermore, as we have mentioned many times above, phenomenal transparency provides multiple possibilities for alternative readings of architecture. If we are able to read architecture using multiple methods, we have to acknowledge that Rowe and Slutzky's theory is not the only standard for analyzing architecture.

Different Origins

Historically, we are able to find a large number of architectural projects in the same period with Villa at Garches and the Bauhaus that contain more or fewer characteristics of literal or phenomenal transparency. Rowe and Slutzky conclude the expanding of cubism in Europe caused the phenomenon. However, we know that various other art styles existed in the same period, and have the potential to be an origin of architectural theory. We can go back to the Bauhaus campus and look at the buildings. I agree that these buildings lack features of phenomenal transparency, but we easily can find the marks of constructivism and Neoplasticism (also known as De Stijil). Meanwhile, Bauhaus influenced the development of Minimalism in 1960s. In my opinion, the glass wall in the Bauhaus seems to be a media, which allows the components of construction, especially the grids of frames, to be exposed. We can find a

Figure 2.1 Tatlin's tower, model, 1919.

similarity with an example of Russian constructivist architecture. As one of the most significant constructivist architectural projects, Tatlin's tower is a typical constructivist architectural design by Vladimir Tatlin in 1919, the first year the Bauhaus operated. Tatlin's tower was to be built with similar materials used by the Bauhaus: iron, steel, and glass. This tower can be seen as an experiment in new architecture. Despite new technology in construction, observers do not expect to see the new shape that differs from traditional architecture. Tatlin's tower and the Bauhaus have multiple similarities. Among these features, the most important one is that both of them represent their pursuits of a modern world. Meanwhile, we can perceive some degree of a desire for utopia from these kinds of pursuits. Moreover, it is possible to connect the Bauhaus with De Stijl. Objectively, both the Bauhaus and De Stijl are influenced by Russian constructivism.

Different origins evolve into different preferences. Literal transparency (Constructivism) emphasizes the appearance of materials and the connection between components of construction,

by which the tension of building is represented. Through the use of new material and technology, Constructivism, as well as Deconstructivism and High Tech architecture later on, represents explorations to a new world beyond reality. On the other hand, phenomenal transparency (cubism) represents a different understanding. First, phenomenal transparency seems to lack an interest in the specialty of materials. When we look at Le Corbusier's projects it is obvious to find that he was always trying to use the new materials and constructive technology of his period, such as steel and the use of the overhanging terrace. However, both new materials and technologies are only the tools to represent the metaphor motif of the project. Each component cooperates with other elements, but the specialty of material is slighted. Second, cubist artists prefer to provide more possibilities of subjective determinations rather than direct descriptions.

Simplicity of Definition

In their essay, Rowe and Slutzky use two examples to explain the characteristics of phenomenal transparency, and choose a different example, the Bauhaus complex, to represent literal transparency. It seems like Rowe and Slutzky believe that literal and phenomenal transparencies are two different concepts, and they cannot be combined in a single project. In my opinion, directly ascribing architecture to either literal or phenomenal is too simplified. Villa at Garches is a typical example of phenomenal transparency, as is the Bauhaus complex. We find that strict compliance with a particular style may tend to show the effect of experimental characteristics of art. However, we are able to see a mix of literal and phenomenal transparency in some cases. These buildings can achieve the same functionality and artistic requirements as well.

We can give a glance at S. R. Crown Hall, the home of the College of Architecture at Illinois Institute of Technology in Chicago, Illinois. S. R. Crown Hall is designed by Mies van

Figure 2.2 S. R. Crown Hall, façade

the upper section is transparent. In my opinion, the curtains prevent excessive exposure of interior space and the upper section implies a continuous shallow space behind the surface. However, the image that observers make at first glance is subverted by the division of three parallel sections on deep direction. Further, S. R. Crown Hall provides a distinct order of space. Because the two areas on both sides are obstructed by curtains, the deep space in the middle area is emphasized. Meanwhile, the two beams on the roof, which remind us of the two sidewalls on the roof of Villa at Garches, keep the same width as the clear room in the middle, and stop at the same points with the platform of steps. Controlling the dimensions in this way represents the metaphoric order of space. On the other hand, S. R. Crown Hall represents literal transparency as well. The exposed components of construction and glass wall represent the importance of material and technology. A lack of attention to the specialty of materials cannot be seen in this project.

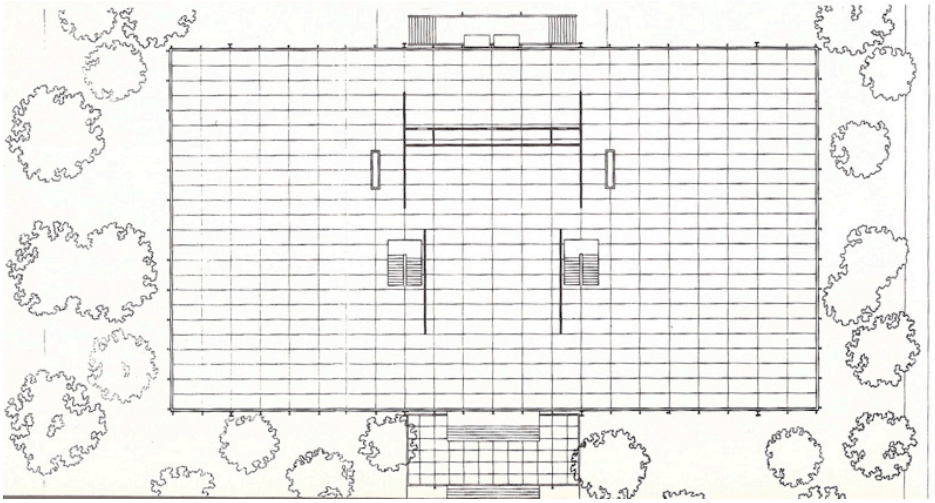

Figure 2.3 S. R. Crown Hall, floor plan

In summary, neither literal nor phenomenal transparency is the only option for architects. As we see in S. R. Crown Hall, a project with compound features is able to achieve the requirements of both functions and art as well. In my opinion, the discussion of transparency in architecture eventually is settled on the experience of space. Rowe and Slutzky emphasized the advantages of phenomenal transparency time after time because it provides more possibilities for observers to evoke subjective readings through implications. Subjective readings induce various interactions between users and architecture, which constantly renew the experience of space. As a result, users complete the transition between acceptors and creators.

AMBIGUOUS SPACE

Due to the appearances of new theories and techniques, architecture has developed further from the period of Gropius and Le Corbusier. Meanwhile, the concept of transparency has been transformed. Now seems to be an appropriate opportunity to discuss transparency within the background of the present. Because the discussion of transparency is based on the experience of space, I must ask several questions. What is the new relationship between people

and transparency? Is there a new understanding of transparency in the present? What kind of new experience can people gain from the new transparency?

To answer the first question, I hope to look at the difference in social behaviors at present. Because traditional architecture usually has cumbersome exterior walls and sealed interior spaces, transparency becomes one of the most important characteristics of modern architecture. Simultaneously, transparency is a tool for the public to represent their attitudes to modern life. Mies van der Rohe designed Farnsworth House between 1945. In the same year, the Case Study House program in southern California started. Both of these two projects represent the luxurious life in the age of consumerism. The public started to realize that privacy is seldom an issue. People can make compromises for their modern lives. And then, the compromises become normal behaviors. Since social communications are getting developed, such as the wide use of social networking services, we find that the boundary between private and public is getting blurred. Transparency is a sign of modernity and progress that was not only technical, but also ethical.[14] Everyday, we can see all kinds of photos and comments that people post on social networking websites. Besides concerns about public issues, the public is accustomed to sharing their private lives with each other. Meanwhile, the public gradually gets used to participating in the lives of others.

When we return to and discuss new understandings of transparency in architecture, we find a possibility, *ambiguous space*. The essential purpose of ambiguous space is to blur boundaries between layers. Compared with phenomenal transparency, ambiguous space contains an indistinct order of space. Observers easily get lost in the dissolved order of space at first glance, and then, they need to find the paths of the labyrinth by themselves. The reason I call an

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[14] Nigel Whiteley, *Intensity of Scrutiny and a Good Eyeful: Architecture and Transparency,* (London, Taylor & Francis, Ltd., 2003), 8.

ambiguous space a labyrinth is that it brings a confusion of emotion to observers.. In ambiguous space, we can see both shallow and deep depth of field at the same time. As I mention in the first chapter, literal transparency is able to produce deep space with vision, but phenomenal transparency creates shallow space on emotion. Ambiguous space contains both of these features in some degree, so that it is able to create more possibilities for observers to read the building. Ambiguous space has similarities with phenomenal transparency as well. For example, foreground and background in the space appear simultaneously, and they merge with each other; grids in ambiguous space provide implications, although they usually guide the view of observers to an incorrect reading deliberately. Ambiguous space contains some characteristics of literal transparency. Similar to literal transparency, ambiguous space represents an inherent quality of substance. For example, ambiguous space sometimes has glazing on a facade, which shows the planar extension in a two-dimensional way. However, this glazing usually serves the function of reflection of light, rather than denying the obstruction of views.

The reason that I believe ambiguous space is a new understanding is that it represents a dissolved space with a blurred boundary. Due to the requirements of social behaviors, the functions of architecture are getting more complicated. Ambiguous space provides a possibility that the transitions between different functions are unconstrained. Meanwhile, one of the purposes of ambiguous space is to blur the boundary between interior and exterior. Glazing is a bridge connecting exterior and interior space, and lets users communicate with the environment around the building. Ambiguous space uses large size glazing to emphasize this kind of communications, with which the distance between users and the environment gets closer. When we discuss multiple possibilities of readings that are created by phenomenal transparency, we usually focus on the effects of vision. However, we are able to find the multiple possibilities of

alternative readings through the movements of people as well. Because there is no distinct direction in ambiguous space, the movements of users are not restricted.

CASE STUDY

In this chapter, I will discuss the characteristics of ambiguous space through two current projects in architecture, KAIT Workshop by Junya Ishigami, and Musashino Art University Museum and Library by Sou Fujimoto. Both of these two projects are completed within the last ten years and can be seen as typical examples of ambiguous space. Through dissolving the solid boundaries of space, users are able to control their movement permissively. Meanwhile, I will introduce my personal exhibition, *Ambiguity*, which represents my understandings to this new possibility of transparency. With the setting of fabric curtains and light sources, I hope to create a constantly changing space without restrictions of movements.

Case Study 1: KAIT Workshop

The first project is KAIT (Kanagawa Institute of Technology) workshop by Junya Ishigami. As one of the representatives in the younger generation of Japanese architects, Ishigami was influenced by Mies Van der Rohe and Kazuyo Sejima, the founder of SANAA architecture firm and the laureate of the Pritzker Prize in 2010. Beyond his processor, Ishigami moves his step further to the “disappearance of space. His designs imply the unlimited possibilities of how to read architecture.

KAIT is a facility for students to work on their creative projects, and its purpose is to represent freedom of creation in this location. The shape of this project is a non-paralleled quadrangle covered with curtain walls. The architect abandons the) solid wall completely in order to emphasize transparency of glazing. Further, transparent exterior walls blur the boundary

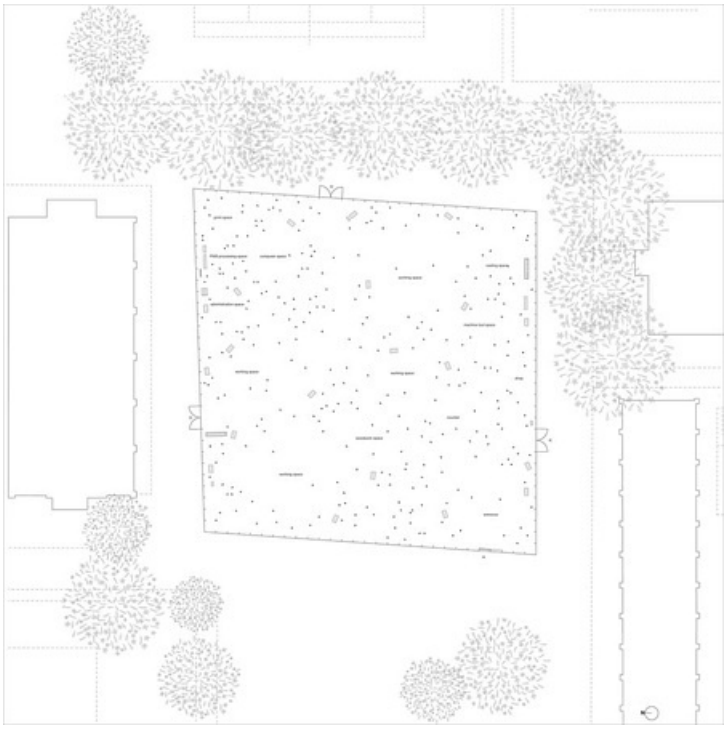

Figure 4.1 KAIT workshop plan

between the building and environment. At the first glance, people may confuse the location of the entrances because the entire surface of the building is occupied by a continuous curtain wall. Because of the unified material, the façades become four flat canvases. Meanwhile, we can see both interior space and reflection of environment appear on the canvas simultaneously. As a result of the confusion, users need to recognize the authenticity of the building. However, the facades constantly refuse any exclusive result. Compared with painting, the building can be seen as the main figure and the environment should be the background. In this example, we realize that the building conceals itself into the background, and the reflection seems to emphasize the importance of environment. The complications of light and reflection can be seen in this building as well. On a sunny day, the surface is reflective and thus shows the trees. However on a cloudy day, reflection and transparency exist at the same time, which represents the confusion of space. At night, the reflection barely can be seen, and thus the interior space stands out. Along with the

Figure 4.2 KAIT workshop, facade

different times, multiple readings of this building become possible. Meanwhile, the building changes the traditional concept of a solid subject in a site and emerges as an unstable status.

When facing the façade of this building, the sensational absence of materiality effects our determinations. Although we can see the distinct cornices and floors at the top and bottom of the surface, it is still difficult to determine the boundaries of the façade on both sides. In the corner, we can see that the curtain wall, roof and floor turn at the exact same point, which eliminates all the possibilities of determining layers. Although the solid lines of the roof and floor lead the vision in a distinct direction, the view is not stopped in the corner. Because the complications of reflection and transparency, the surface seems to be extended. Also the edge of the curtain wall is blurred at each corner. Standing outside of the building, people are able to find the perceptive edge of the building, rather than a clarified physical edge.

The interior space of this building also creates an exciting experience for users and it represents the characteristics of ambiguous space. The most significant feature of this building is

that three hundred and five columns are irregularly located in a single-storied, one-room, space.[15] Either standing on outside or inside of this building, the complicated matrix is easily detected. Ishigami mentions that he wants to create a space that brings natural elements into interior. We can imagine that the columns explicitly imply the sensation of a forest. Meanwhile, the matrix interrupts the regular organization of structure of building. Usually, a neat grid of columns is a typical standard to recognize the direction and size of space. However, when columns are arranged with an irregular layout, the routine method for detecting the function of space is lacking. As we have seen in Villa of Garches, observers have to use subjective guesses to restore the reality. During the process, multiple possibilities for alternative readings of the building appear. Lack of visual obstructions is another feature of this project. In general, solid wall is one of the most elementary components that divide space into public and private. In this project, public and private spaces seem to merge together. Private space seems to be ignored. When he mentions the divisions of space, Ishigami says that his intention is not "to plan individual spaces in different locations of this building one by one".[16] In this building, the whole and parts have the equal value and status. Further, the delimitation of space is not static. Because most of semi-private spaces are bounded by furniture, every movement of the furniture is able to produce the change of space. "There is a plan, but no defined bounder. This is the space in my mind,"[17] Ishigami describes his understanding of this building. Meanwhile, personal activities affect the readings of this space. When someone is working in a specific spot, others will automatically realize that the space is occupied, due to the transparent glass. Numerous spots force a person to draw a map in ones mind, which includes the possible path and divisions of public and private.

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[15] Junya Ishigami, *Junya Ishigami: Small Images,* (Tokyo, INAX Publishing. 2008), 29.
[16] Junya Ishigami, *Junya Ishigami,* 29.
[17] Junya Ishigami, *Small Images,* 28.

With involvement in different activities, this map is revised all the time, which means a new possibility of space is created. Along with the subtle movements of users and plants, the boundaries of the spaces become ambiguous as well. In brief, the building is a specific space containing "an entrance-like space, a work area-like space, and a passage-like space".[18]

Figure 4.3 KAIT workshop interior

Figure 4.4 WAIT workshop, interior

[18] Junya Ishigami, *Small Images,* 29.

Meanwhile, the columns bring a sense of instability of the space as well. They are excessively tenuous, with which the roof seems to be a balloon bolted down by countless slight lines. Maybe at sometime the roof will ascend into sky. In this space, every movement of every person will change the whole experience of the building.

Some characteristics of phenomenal transparency are represented in this building. First, off-axis perspectives are avoided as much as possible and frontality is emphasized. The shape of this project is a quadrangle with an oblique angle, which the perspective in each direction inclined. We have the common knowledge that near is large and far is smaller. The grids on ceiling lead to views of the far ends, the distance may be much further than how it appears to the viewer visually. In this building, the sensation of deep space is replaced by a series of parallel layers from foreground to background. The columns challenge users' sense of depth of space all the time, but they still leave some clues for users to discover the essence of the space.[19] Second, foreground and background appear with equal importance simultaneously. Every column in this project is tenuous, but sizes are different. It is hard to realize their presence due to the tenuous thinness of each column. Meanwhile, all the columns are set as rectangles rather than squares, so that a column appears slightly thicker or thinner depending on the location from where you look at it.[20] Varied appearances reduce the solidness of columns. At least they are not prominent parts in whole space. However, when there are more than three hundred columns in a single-room space, the tensions of these vertical sticks cannot be ignored. Observers need to not only recognize the distances between each two columns, but also to detect the connections between them. When facing countless columns, a flat, two-dimensional image emerges in front of ones

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[19] Junya Ishigami, *Another Scale of Architecture,* (Kyoto, Seigensha Art Publishing. 2010), 273.

[20] Junya Ishigami, *Junya Ishigami,* 33.

eyes. Looking at this space is exactly the same as reading a cubist painting. The depth of the image depends on the association of ideas in the mind. Actually, the phenomenon of confusion between shallow space and deep space appears in cubist paintings again and again. Due to the denseness and irregularity of columns, we are not able to spot the accurate location of every column. As a result, the contradiction between two-dimensions and three-dimensions constantly exists.

The ceiling represents the conflict of dimensions as well. Because the connection between floor and ceiling is repeatedly emphasized by the columns, the observers' eyes unavoidably move to the ceiling, which is created by alternating linear patterns. We easily can detect that the widths of bright ribbons are not uniform but that the rhythms of brightness and darkness are varied. However, the grids are not the only things we can see when we look up. We also can see many columns pointing to one vanishing point meeting at a far distance in the sky. When we attempt to search for the perceived vanishing point in the air, the ceiling stops us. It interrupts the extension of columns, so that we hardly regard them as an implication of deep

Figure 4.5 WAIT workshop, ceiling

space. Meanwhile, the parallel ribbons on the ceiling represent two-dimensional space, and lead viewers to the horizontal ends on the sidewalls. In summary, interior space is filled with contradictions of two-dimensions and three-dimensions. However, these kinds of contradictions force users to change their anticipations of this space, and thus the readings of the space become multiple.

From entirety to details, Ishigami emphasizes his understanding of how to "dissolve space" in this building. The entire building merges into the environment, and the boundary of this building is blurred. The interior space also represents the same essential idea. Numerous columns create a complicated matrix, which compresses the building into a shallow space. The minds of users have to move from two-dimensions to three-dimensions back and forth. Although the order of space is not as distinct as Villa at Garches, ambiguous space is able to produce multiple possible readings of architecture. Furthermore, we can see that an ambiguous space is not stable constantly. Rather, the space is transforming in people's minds all the time.

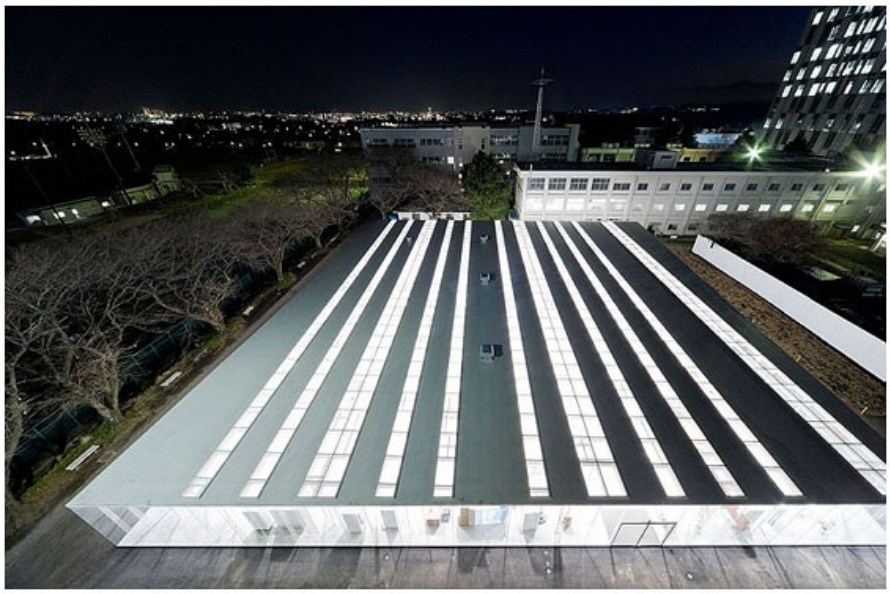

Figure 4.6 WAIT workshop, bird's view

Case Study 2: Musashino Art University Museum and Library

The second example of ambiguous space is Musashino Art University Museum and Library by Sou Fujimoto. Fujimoto is another representative of the new generation of architects in Japan. According to his statement, his purpose is "to make weak architecture", which is "not making architecture from the relationship between each parts, rather than from a overall order".[21] He also mentions that the result of weak architecture is "a new order is made that cooperates uncertainty and disorder".[22] The specific details of the new order will be explained later in this paper. In Fujimoto's projects, the focus of a view is usually dispersed. Users seem to walk into an infinite space, in which nobody is able to point at any definite volume. Users have to reorganize their thoughts and thus create new possibilities of space in their minds. The masterpieces of Sou Fujimoto are Musashino Art University Museum and Library, House NA, and Serpentine Gallery Pavilion in 2013.

Musashino Art University Museum and Library represents the concept of ambiguous space sufficiently. The concept of this project comes from the impression of a traditional library in which every corner is occupied by constant bookshelves. Fujimoto improves this concept and pursues the modern form with the essence of a traditional library. In this space, we can see bookshelves everywhere, from floor to ceiling. However, this space is not simplified bestrewn with an infinite number of bookshelves. Instead, this is a canyon of books that extends to multiple dimensions. The infinite bookshelves and neat grids increase the unification of the space, which produces a strong contradiction with a complicated path. In order to increase the impact of sight, the height of the library is set at 29.5 feet (9 meters). In this space, the feeling of being engulfed by environment is produced.

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[21] Sou Fujinoto, *Primitive Future,* (Tokyo, INAX Publishing, 2008), 9.
[22] Sou Fujinoto, *Primitive Future*, 9.

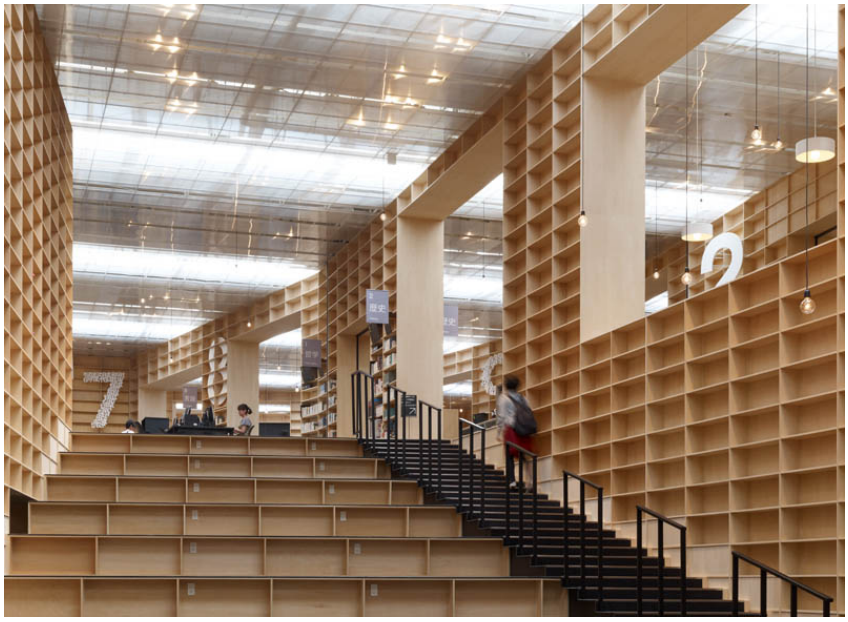

Figure 4.7 Musashino Art University Museum and Library, interior

Several questions of concern come to mind about the library. What kind of form can represent an infinite space? Why should this space be a complicated labyrinth? There is an irreconcilable conflict between a labyrinthine space and a library with the function of fast and convenient research. As I mentioned above, a new order that includes uncertainty and chaos is established. Fojimoto decides to use a spiral form to organize the library, which contains both functions of search and stroll. He calls this spiral form a Guru-guru, which "externalizes all interiority and internalizes all exteriority".[23] Meanwhile, it contains both infinite depth toward the interior and infinite extension toward the exterior. Meanwhile, a spiral space neutralizes the trend of extension in a straight direction, and then guides the movement and view to the parallel ways. A Spiral space contains another advantage in representing ambiguous space. First of all, a spiral path has a non-linear extension, which compresses the space into a tight volume. Also, the movements of users are defined as rotations. Second, spiral space provides infinite possibilities for users to discover the space. As we know, people enjoy the process of looking for the exit of a

[23] Sou Fujinoto, *Primitive Future*, 92.

labyrinth, and a varied path provides more possibilities for strolling. The process of discovery increases more possible alternative readings of the space. Meanwhile, the space produces both attraction and confusion in the same degree. On one hand, users are attracted by the mystery of

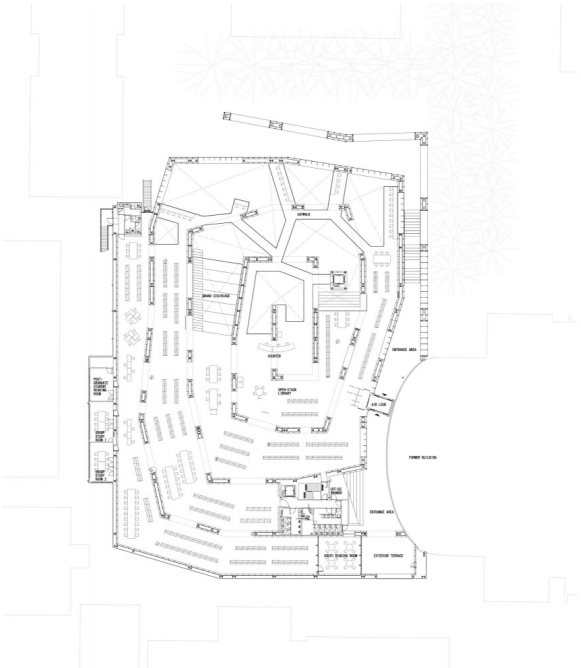

Figure 4.8 Musashino Art University Museum and Library, first floor plan

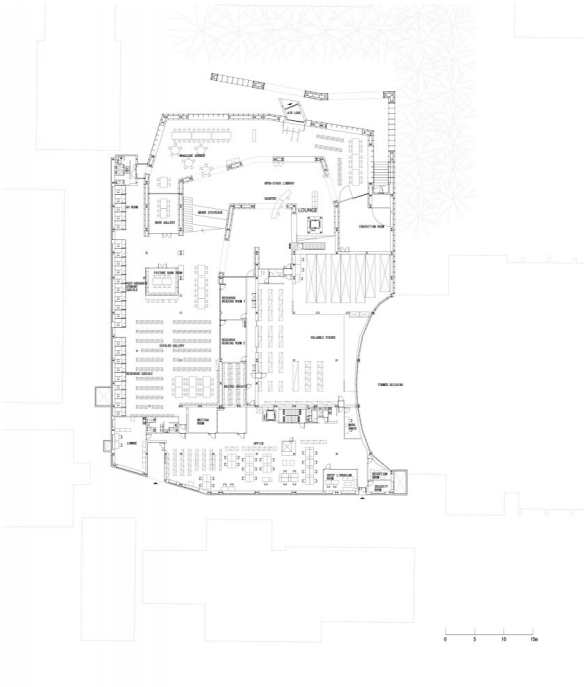

Figure 4.9 Musashino Art University Museum and Library, Basement plan

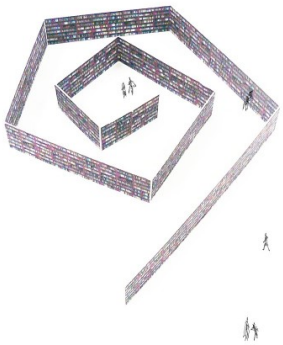

Figure 4.10 Musashino Art University Museum and Library, concept

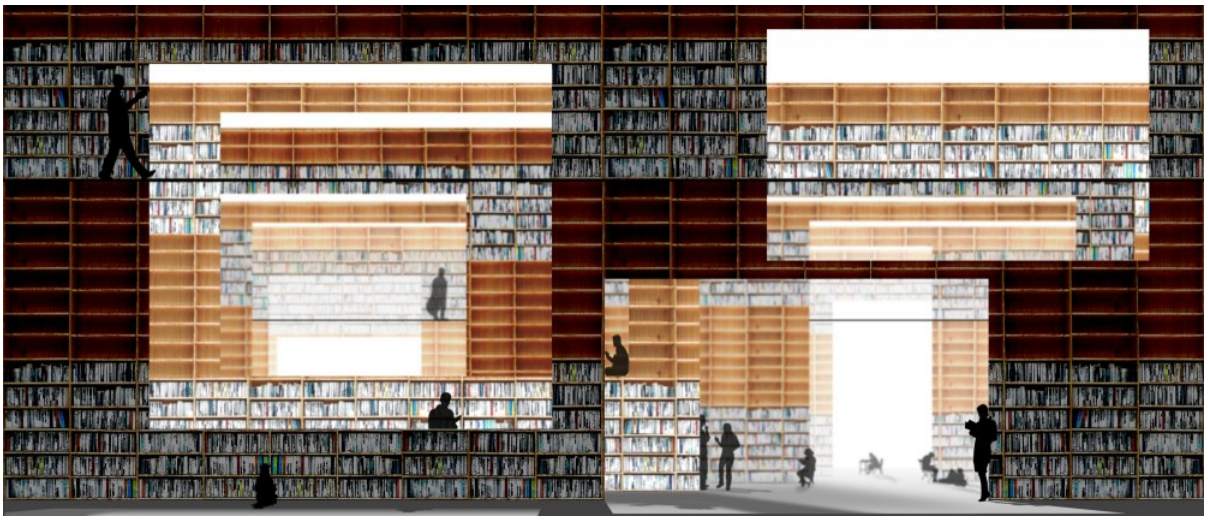

Figure 4.11 Musashino Art University Museum and Library, section

spiral, and thus want to detect the information in the center of the spiral. On the other hand, the confusion comes from the multiple dimensions. Although the main path in the spiral is obvious, the holes on bookshelves provide possibilities for users to access from one layer of the spiral to

another, either by behavior or vision. Then, users have to make a choice. They can follow the path into the center of spiral, or choose to move between layers without limitation.

Fujimoto denies a sealed space because he believes bookshelves may erase the appearances of the users, and then make them fear the books and the space. Simultaneously, there is a lack of interesting experience if users follow a path of an established spiral. To reduce spatial restriction, Fujimoto breaks some of the walls with holes and interspaces and flyovers are inserted. These flyovers connect different layers of the spiral with various directions, from inside to outside. Meanwhile, they also disorder the order of the space. As I previously mentioned about Fujimoto‘s purpose, a new order is created. When people are walking on the regular path of the spiral, they are constantly interacting with the holes on the walls. The deep spaces behind the holes seem to indicate other possibilities about the dimensions of the space. No matter which way the users choose, they will with certainty miss the opportunity to discover another path. Therefore, users have to use the clues they find to create a floor plan in their minds, which may help them to understand the entire space. However, this imagined floor plan is not always correct.

We can conclude then that there are benefits that the holes and flyovers bring to the space. First, this method changes the monotonousness of the walls. Because the wall is created by more than 20,000 unified units, visual fatigue is quickly produced. However, the holes break the continuity of duplications. For the same reason, flyovers prevent the singular sense produced by a unified story. Second, we can find that the ability to stroll is the essential purpose that Fujimoto hopes to emphasize in this space. The ability to search, on the other hand, is the response that he has to the function of a library. Because of the holes and flyovers, an explicit path in this library is created. People do not have to follow the established path moving in or out of the spiral. Both the ability to stroll and research are considered. Furthermore, users barely experience the

existence of the spiral. The spiral indeed provides the basic order of this space. However, this order has been concealed. Because of these holes and flyovers, users are able to move from the most interior circle to the most exterior circle with a relatively straight path, as well as with their vision. Users may have the sense that they are engulfed by countless bookshelves, but their views and movements are totally free.

As the most important element of this building, the spiral wall represents several features of ambiguous space. First, it reduces depth of field. "The independence and interdependence of certain area mutually compatible; expansion and stability coexist; something far is actually alongside."24 Comparing it with a straight way, the spiral path compresses the space. Further, the distance that the views can achieve is significantly reduced. Second, the entire space is broken into numerous fragments. This characteristic can be connected with the same one in cubist paintings. Similar to cubist paintings, fragments distract the attention of users. Therefore, users have to organize the fragments in their own minds, so that an integrated space can be

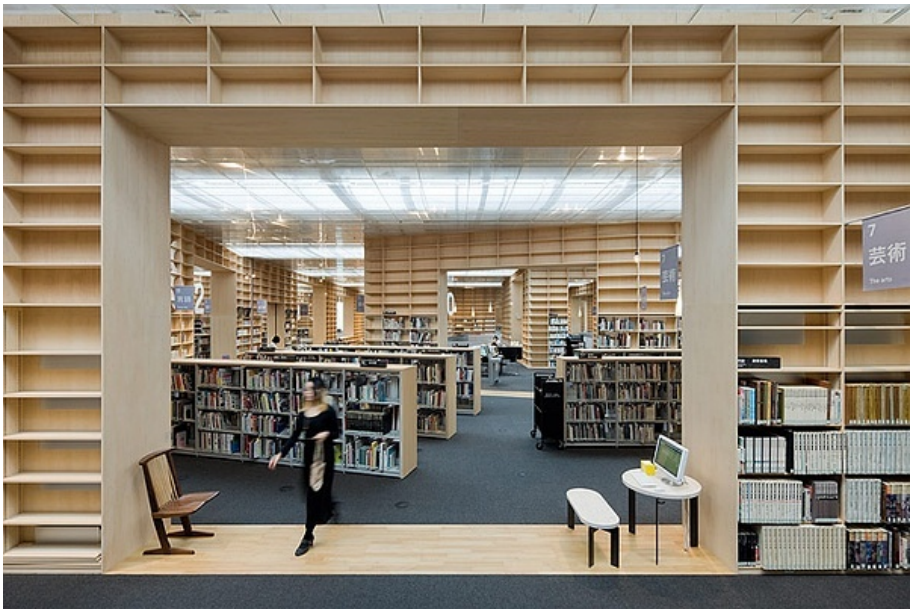

Figure 4.12 Musashino Art University Museum and Library, bookshelves

[24] Sou Fujinoto, *Primitive Future*, 99.

created. Further, this kind of characteristic produces multiple reading methods of the architecture. Except for a couple of inevitable rooms, such as restrooms and machine rooms, the entire building is designed as a single space without solid obstructions. People are able to use multiple ways to move between two points. Every time, when people choose a different path to the same locations, their views and experiences of the space are different. As a result, the impressions of this library become varied. Meanwhile, the interest of the building is increased.

Surface is an inevitable element in this building. For accomplishing the initial idea, Fujimoto abandons the common method. Instead, the bookshelves become the walls. These bookshelves are unified, duplicated, and saturated. They are the combination of flatness and depth. Depending on the standpoints, they can be seen as flat as a solid wall. However, when we move toward an oblique angle, the bookshelves show the depth of the wall. We can see the transformation of perspectives, which is increased when the wall extends to a different direction. Meanwhile, unified bookshelves restore the perceivable continuity of surface that the holes create. Even when the wall misses the position of holes, it is still not difficult to imagine the

Figure 4.13 Musashino Art University Museum and Library, interior

continuity of the wall. Further, the perception of the entire wall will extend to the far ends. At the same time, the spiral form, the elemental order of the space is not broken. In terms of the huge volume of the spiral, the form cannot be ignored completely. Similar to *Mont Sainte-Victoire*, diagonal perspective is preserved while parallel perspective is emphasized. Although the integral spiral is interrupted constantly, users are able to perceive the implication it brings.

We can presume what the experience is when a reader goes into this library. The reader feels the conflict and chaos of this space at the entrance. Suddenly he or she finds the implied order of the space, a spiral path. However, the sense of intense chaos fills his or her mind. There are too many branches of the path he or she needs to deal with at the same time. Every hole between bookshelves may lead the person to a new place. Meanwhile, the overwhelming spiral wall implicates that he or she is still in the middle of the spiral. The contradiction of distance and the confusion of location create the new order of the library. When he discusses distance in architecture, Fujimoto says that it is not a physical distance; it is a psychological distance arising from the distortion and modulation of space.[25] This distance is ambiguous, which only can be felt by emotion. Due to the different emotions of different people, the results are various. Finally, we need to know that the reading of a spiral space is simplified, but the readings of the ambiguous space are various, only if the boundaries are blurred.

Musashino Art University Museum and Library reflects Fujimoto's understanding of transparency. In this building, the established order of space is replaced by an emotional order, a combination of deep space and spiral form. Users are forced to accept multiple dimensions of the space. Due to the constant implications, the process of development of this space becomes interesting. Through the use of parallel perspective and duplicated units, the interior space of this

[25] Sou Fujinoto, *Primitive Future,* 10.

architecture is compressed. Ambiguous space, in this case, represents the combination between chaos and order, between established order and new order.

Case Study 3: *Ambiguity,* Gallery Exhibition

In this section, I want to introduce one of my experiments, *Ambiguity*, which was finished in the gallery of Ernest G. Welch School of Art and Design at Georgia State University in April 2014. In the gallery (19feet by 34 feet), of this exhibition, I hope to change the original appearance of the room and thus to create an ambiguous space. I decide to hang multiple layers of curtains with different sizes and locations, in order to compress the depth of field and to create an ambiguous space with blurred boundaries. Although the installation creates an abstract space in the gallery, I hope it may become one of the suggestions for designing ambiguous space in practice. In this section, I would introduce three main elements of my installation, material, layout of fabrics, and illumination. These three elements support the concept of ambiguous space, and create a new experience of space for observers.

I choose white fabric as only material because of two reasons. First, white fabric provides more possibilities of transparency. This kind of material contains 80% visibility, which keep the perfect balance between the opacity and transparency. It confuses the original understanding of the space and brings perception of a flat and compressed space for observers. In practice, the distances between layers are confirmed, but the order of this space becomes unstable. Further, I hope white fabrics are able to cooperate with white walls and ceiling, and expand the tension of this space. Over here, I guess white is the only choice for me to achieve the purpose of creating an ambiguous space. With the same tone, the continuity between fabric and wall is produced; therefore, the boundary between two different materials will be blurred. If I chose any other color, the contrast between fabric and room would stand out. We are able to see a distinct

Figure 4.14 *Ambiguity,* View from Entrance

Figure 4.15 *Ambiguity,* View from Back Wall

division between fabric and wall in this room if a strong contrast is created. However, I hope people find an integral perception of ambiguity alone in this space. The contrast of different colors may prompt some other focus for observers, with which the purpose of the installation may not be simplified any more.

There is another reason that I eventually choose this material. As I mentioned above, this material contains 80% visibility, which may change the views of observers all the time. When

the exhibition is opened, I try to pay attention to the variations of transparency that produced by the movements of other observers. Because the blurred boundaries of layers, it is difficult to determine the accurate order of space. Therefore, I need the helps of others to sense the distance between one specific fabric and myself. When a person stands in front of a layer, he or she would be the clue to measure the distance. If I determine the distance by the fabric alone, the other layers would confuse me and lead me to a disordered integer. However, the distinct perception of distance appears only within a few seconds and disappears again. In some area, people can be seen with 80% visibilities or a little lower in terms of the quantity of layers. However, people only can be seen with 20% visibilities. As a result, I find that people in this room always exist between appearance and disappearance.

Figure 4.16 *Ambiguity*, Interior View

I want to discuss the layout of the exhibition as well. First of all, the space is divided on horizontal and deep directions alone. As an experiment of ambiguous space, oblique lines may lead the views of observers to the corners of the room, thus the three-dimensional perspective would be emphasized. However, a parallel perspective is more appropriate for the purpose of ambiguous space. Oblique perspective exists in this space, although its continuity is reduced. On

deep direction, there are only five pieces of fabrics, which all hang on the ceiling with transparent strings with the same height (8 feet). Cooperating with the grids on ceiling, the tendency on deep direction is easily defined. However, one of the purposes of this exhibition is

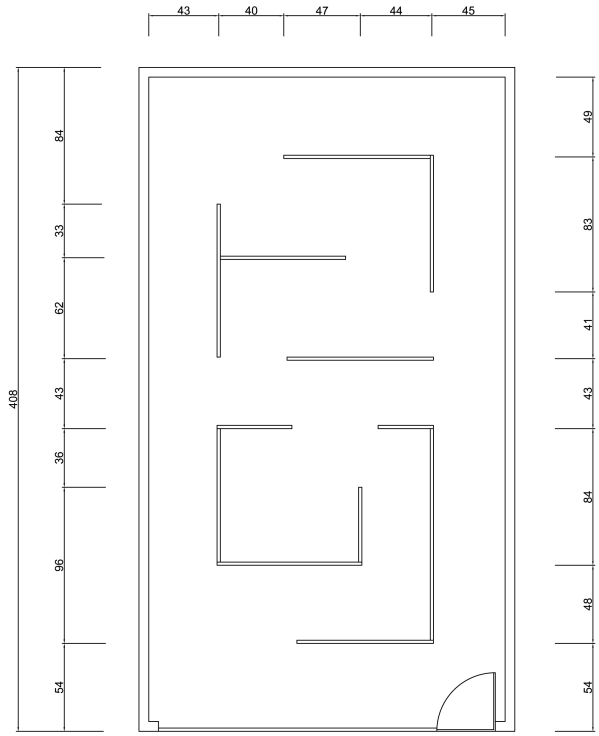

Figure 4.17 *Ambiguity*, Floor Plan

Figure 4.18 *ambiguity*, Fabrics with Different Orientations

to break the original tendency of orientation, and then to represent a shallow space. I constantly use horizontal fabrics to obstruct the inertia of views, which can be relieved from deep side. Further, these parallel layers provide more opportunities for observers to extend their views to sidewalls.

The sizes of fabrics on horizontal way are much smaller than ones on deep side, which increase the diversifications on both horizon and height. In contrast, the perspective on depth is reduced tremendously. The heights of fabrics also reflect the order of space. From the entrance to the back wall, the heights of fabrics gradually elevate. The organization of height has specific purpose. I try to simulate the order of observation when designing the space. First, the front of this gallery is a curtain wall, through which people are able to give a glance at the space. When they look at the space at the first time, I hope the order of space can be transferred to their mind. The ascend layers can be seen as the clue to realize the order. The view of observers would

Figure 4.19 *Ambiguity,* Interior View

height with the fabric on deep side. The view again would be lead from back wall to the front, and thus become a loop. However, the distinct order of space is disappeared when people walk into the gallery. Some fabrics are designed to obstruct the view and to create different transparencies between layers. The order of space becomes ambiguous eventually. Instead, as we mentioned above, observers have to speculate the order through the distance of people. However, the distance between people is not invariable all the time. As a result, the entire space seems to be dissolved.

Illumination is another important element in this exhibition. The main light sources in this room are the spotlights on the ceiling, of which light intensities can be adjusted. Due to the large quantity of spotlights, the illumination in this space distributes even. This characteristic of space supports the concept of ambiguous space in some degree because the lack of focus. It is difficult to point the main figure of the room, in which all elements seems to be equal with each other. Meanwhile, people in this room also blur the focus. When people walk around the space, their shadows would be projected on different pieces of fabrics. Along with their movements, the shadows would be changed all the time as well. Eventually, the combination between fabric and lights represents a dynamic space.

As I mentioned, light intensity can be adjusted in this room. Along with the change of light intensity, transparency of fabric is transferred as well. During the days of the exhibition, I want to provide a possibility that people decide how bright the room is. Everyday, I would go to the gallery and to see the different perceptions of space that create by multiple light intensities. Some people prefer a bright environment because brightness is able to bring a stronger sense of ambiguity. When all the lights are turned on, the entire space seems to be extended to infinity. All the layers of fabrics seem to be attached together. Meanwhile, the space between fabrics,

Figure 4.20 *Ambiguity*, Fabrics with Different Orientations

Figure 4.21*Ambiguity,* Appearance with Illuminations

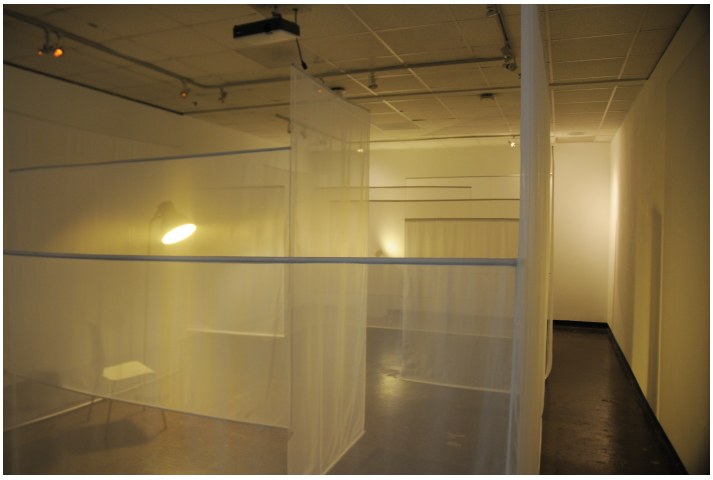

Figure 4.22 *Ambiguity*, Appearance with Dimmed Lights

either passageway or “chair room”, is compressed. Otherwise, some people believe the dimmed lights would help them to realize the spatial order. When the lights are dimmed, the contrast between brightness and darkness becomes stronger, with which the perspective on deep side appears again. I want to promote the statuses of observers because alternative readings of space are very important for me. Observers have opportunities to decide the appearance of the space through controlling lights. In company with different denseness of shadows, the activities of observers are able to change the appearance of the installation, and provide multiple possibilities for reading this space.

In conclusion, *Ambiguity* is a representative of my understanding of spatial transparency in architecture, with which I want to bring a new appearance of the space to observers. In this space, transparency is not only a physical characteristic of material, but also a subtle order of space concealing behind a plain surface. At the first glance of the installation, I guess people may lose their focuses and drop into a chaotic composition. However, everything is going to be changed when they walk into the gallery. A new experience of space will appear in their minds gradually, and the chaos of space will decline. Eventually, the order of space becomes distinct, although the visions are always blurred. Further, I hope people are able to participate in this exhibition, not only as the observers, but also as the decision makers. Different decisions are the important elements in this exhibition because subjective understandings produce multiple possibilities of alternative readings of the space. Therefore, neither correct nor incorrect reading of the space exists in this gallery. The space should only exist in an ambiguous form.

CONCLUSION

Transparency is a significant characteristic of modern architecture. It is acknowledged as global because it appears in different architectural traditions with tremendous variety.[26] It is not only a physical attribute of materials, but also a phenomenon that appears in the organization of space. From *Transparency, Literal and Phenomenal* Colin Rowe and Robert Slutzky raise transparency to a theoretical level. In the past 50 years, this essay has become a an important essay that cannot be avoided in architectural history. At the beginning of my thesis, I explain the two concepts of transparency according to Rowe and Slutzky, and then present my understanding. From my knowledge, phenomenal transparency creates a space with a distinct order. The order of space is implied by numerous clues. Literal is more direct than phenomenal because all the information of the space is clearly to be seen.

Later I argue against *Transparency, Literal and Phenomenal* with two points. First, I doubt that both literal and phenomenal transparency have the same origin. As the example, I compare the Bauhaus complex with Tatlin's tower. Second, I disagree with the simplified classification of architecture. I believe that both concepts of transparency can appear in a single project. Also, I use S. R. Crown Hall by Mies van der Rohe as the example to explain my statement. In the third chapter, I discuss my idea of a new transparency and explain ambiguous space, one of the new possibilities of transparency in current architecture. Meanwhile, I explain what this kind of space is and what kind of characteristics it has. Subsequently, I use two current projects to explain the characteristics of ambiguous space. KAIT workshop by Junya Ishigami and Musashino Art University Museum and Library by Sou Fujimoto can be seen as two typical

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[26] Deborah Ascher-Barnstone, *Transparency: A Brief Introduction,* (London, Taylor & Francis, Ltd., 2003), 3.

examples of ambiguous space. In the last chapter, I explain my understanding of the new possibilities of transparency in my gallery show, Ambiguity, and then to prove its operability.

Although transparency in modern architecture is not a new concept any more, it has inevitable value. Ambiguous space is only one specific possibility of transparency. However, I believe that the understandings of transparency should be varied. Along with new technologies, theories of architecture, and social behaviors, the concept of transparency will constantly transform.

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